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Original Documents

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公告本

278537

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類 別	E04B 2/86

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(以上各欄由本局填註)

發明專利說明書

一、發明 名稱	中 文	灌漿式隔間牆構造
	英 文	
二、發明人 創作	姓 名	簡永隆
	國 籍	中華民國
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	代 表 人 姓 名	

四、中文創作摘要（創作之名稱：

)

灌漿式隔間牆構造

本創作係提供一種灌漿式隔間牆構造，其係包括有：上水平架，係與天花板固定；下水平架，係與地板固定；多數之縱向支架，係呈間距架立於上、下水平架間，各縱向支架係設有兩側緣，其上、下端係分別與上、下水平架固定；多數之外層板，其上均設有多數之溢流孔，其係固定於各縱向支架之兩側緣使形成牆厚之容置空間；及漿體，係灌注於外層板所包圍之容置空間；藉由以上構造，本創作灌漿後整體即結合成非常堅實之牆面，其外層板可為水泥纖維板或礦纖板非常平整可直接披土將溢流孔及螺孔補平即可，後續施工非常方便，而且在架設支架和外層板均甚為簡便。

英文創作摘要（創作之名稱：

)

(請先閱讀背面之注意事項再填寫本頁各欄)

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五、創作說明(／)

- 1 本創作係有關於隔間牆構造，特別是指一種灌漿式隔間牆構造：

按，習知隔間牆在設置上大抵有下列數種：

一、砌磚式：

- 5 其係以水泥堆砌磚塊築成，在施工上需搬運磚塊至各樓層，而水泥與細砂亦需現場攪拌使用，而且精砌成後需再補土、整平、粉光、披土，最後再油漆才完成，甚為費工耗時，成本甚高，且容易龜裂，在管線之配置上需開鑿牆面非常不便且會破壞牆面之應力結構，當地震時很容易有龜裂現象，另外，在施工時現場會產生甚多廢料，需加以清除。
- 10

二、ALC式：

- 係以粘著劑堆築ALC塊（俗稱輕質磚塊），精砌成後需披土和油漆即完成，雖然施工上方便許多，然而ALC塊較磚塊為貴，且與砌磚同樣有管線配置之困難及容易龜裂。
- 15

三、石膏板式：

- 係架設槽鐵架，再以石膏板鎖設於槽鐵架之兩面上，其在施工上雖最為簡便，配管線可設於兩石膏板間之空間非常容易，及低成本，然而石膏板怕水，遇潮時容易發霉，不適合台灣高濕度氣候使用，而且其兩石膏板間是空心強度小，當拍打時會有聲響，不耐撞擊，更不能釘掛物品。
- 20

四、RC牆：

係架設鋼筋，兩面鋪設木模板，再灌注混凝土，其具

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五、創作說明 (2)

- 1 有堅固、配管線容易（在灌注前先配好管線）、及灌注容易之優點，然而施工上需大量之木模板（用過之木模板不能再重覆使用），現今原木愈來愈貴，且施工上需編綁木模板、架鋼筋、拆除木模板，整體之施工技術性高且速度
- 5 慢緩，使成本增高，其木板拆除後仍需補土、粉光、披土、油漆，另外，RC牆因整體結構甚重較不適於作為隔間牆，其最適合於作為外牆及承重牆。

- 有鑑於上述習知各種牆面之設置優缺點，業者進而發展出一種灌漿式隔間牆，請參閱第一、二圖，係為公告號
- 10 227243習知之灌漿式隔間牆（以下簡稱前案）其係呈間距架設有多數支口形之槽鐵架11，該各槽鐵之上下端係以自攻螺絲101鎖定於天板15和地板16，該各槽鐵架11之兩側緣111亦以自攻螺絲102鎖設有網狀之鐵片體12，使形成一容置空間，在施工上，該上下之兩網狀之鐵片體12間係留
- 15 有灌注口13，由各灌注口13由下往上逐段灌漿使充滿該容置空間，多出之混凝土和水份由網孔滲出，當混凝土凝結後即與槽鐵架11和鐵片體12結合成一體，藉由鐵片體12之網孔拉住混凝土而形成一整體堅固之隔間。

- 上述之灌漿式隔間牆主要係結合石膏板和RC牆之優點的改良設計，其可達到牆面之堅固性，配管線之方便性，
- 20 及施工上非常簡便，而且因牆面具有一體結合特性，並非如磚塊一塊塊砌成，故抗龜裂性甚佳，不容易產生龜裂現象，然而其仍未達到最為完善之境界，有以下之缺失待改善，即：

五、創作說明 (3)

- 1 1. 灌漿時之牆面並非是平整面，仍需由人工於灌漿過程時一邊補土和整平，待凝固後需再粉光，披土後才能油漆，在施工上並非相當簡便。
- 5 2. 使用網狀之鐵片體12作包覆，由於鐵片體12較軟會彎曲，故在架設上槽鐵架11之間距不能太大，約30公分就要一支，且自攻螺絲亦需較密，才能使鐵片體12架設較為結實，如此，在施工上就需較為費事耗工。
- 10 3. 在灌漿上係由下而上分段灌漿，即需下段灌漿凝結後才能往上一格灌注，故灌漿速度較慢。

有鑑於此，本案創作人積極從事改善經不斷苦心精心設計，終於設計出本創作之“灌漿式隔間牆構造”。

- 15 本創作之主要目的在於提供一種灌漿式隔間牆構造，使在整體架設上非常簡便，且灌漿後牆面可直接披土，達到施工上之簡便性，節省人工成本。

- 20 本創作之主要特徵在於以堅實之外層板來取代習知之會彎曲之網狀之鐵片體，使在架設上較為簡便，且在灌漿後免除粉光之施工，該外層板可為水泥纖維板或是礦纖板等建材，其上均設有溢流孔，如此即可達到網孔與漿體緊密結合之效果，該溢流孔係設置成外孔較內孔大之雙層孔，如此漿體凝固後可形成勾扣效果，更能加強整體之結合效果。

緣是，本創作灌漿式隔間牆構造，其係包括有：上水平架，係與天板固定；下水平架，係與地板固定；多數之

(請先閱讀背面之注意事項再填寫本頁)

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五、創作說明 (4)

- 1 縱向支架，係呈間距架立於上、下水平架間，各縱向支架係設有兩側緣，其上、下端係分別與上、下水平架固定；多數之外層板，其上均設有多數之溢流孔，其係固定於各縱向支架之兩側緣使形成精厚之容置空間；及漿體，係
- 5 灌注於外層板所包圍之容置空間。

藉由以上構造，本創作灌漿後整體即結合成非常堅實之牆面，其外層板係為水泥纖維板或是礦纖板非常平整可直接披土將溢流孔及螺孔補平即可，後續動作非常方便；另外，因外層板不會彎曲故在架設上該縱向支架之間距可

10 加大不需很密集，使施工上更為簡便。

本創作之其他優點、目的及特徵，由以下說明配合圖式可對本案較佳實施例所作之詳細說明獲得進一步之瞭解。

一、圖示簡單說明：

- 15 第一圖係習知之灌漿式隔間牆之正面示意圖。
- 第二圖係習知之灌漿式隔間牆之部份立體分解示意圖。
- 第三圖係本創作一較佳實施例之正面示意圖。
- 第四圖係本創作一較佳實施例之部份立體分解示意圖。
- 第五圖係本創作一較佳實施例之外層板和縱向支架結
- 20 合之剖面示意圖。
- 第六圖係本創作一較佳實施例之外層板溢流孔和灌體結合之剖面示意圖。

二、標號簡要說明：

- 2 上水平架

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五、創作說明 (5)

- | | | | | |
|---|----|------|----|------|
| 1 | 3 | 下水平架 | | |
| | 4 | 縱向支架 | 6 | 漿體 |
| | 5 | 外層板 | 75 | 容置空間 |
| | 51 | 溢流孔 | 76 | 自攻螺絲 |
| 5 | 53 | 灌注孔 | | |

請參閱第三、四、五圖，本實施例係包括有：上水平架2、下水平架3、多數之縱向支架4、多數之外層板5、及漿體6所構造成之隔間牆，其中該：

該上水平架2，係為U形槽鐵架，以自攻螺絲使與天板71固定，以使上端齊平。

該下水平架3，係為U形槽鐵架，以自攻螺絲76使與地板72固定，以使下端齊平。

該各縱向支架4，係呈約45公分間距架立，其係為U形槽鐵架，其兩側緣41之上、下端係分別以自攻螺絲77與上、下水平架2、3固定，另外，其中間板適當間隔設有一開孔45。

該外層板5係，可採用一種水泥纖維板或是礦纖板之建材，本實施例係在板面上均設有多數之溢流孔51，使具有網狀開孔之效果，請參閱第六圖，該溢流孔51係設置成雙層孔，其內孔511之孔徑約1.5cm，外孔512之孔徑約2.5cm，如此當與漿體結合後可形成勾扣效果，其係以自攻螺絲76固定於各縱向支架4之兩側緣41，使與各縱向支架4固定並形成牆厚之容置空間75，而該自攻螺絲76係沈於板體內2，螺絲頭不會凸出板面。

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五、創作說明 (6)

1 該漿體 6，係灌注於外層板 5 所包圍之容置空間 75，其可為混凝土或是輕質水泥。

5 在施工上，該各外層板 5 係視牆面之長度和高度裁接架設（目前有 4*8 英尺之規格板），整體板面之上端係配合配合縱向支架 4 之間距設有灌注孔 53，在施工上係建物內之管線或開關於各縱向支架 4 間之容置空間配設好後，再自該各灌注孔 53 灌漿而形成一隔間牆。

藉由以上構造，本創作灌漿後整體即結合成非常堅實一體性之牆面，其外表係為水泥纖維板或礦纖板非常平整，在 10 施工上較習知之灌漿式隔間牆上有以下之方便性：

1. 外層板 5 非常平整，灌漿後可直接披土將溢流孔 51 ；接縫、及螺孔補平即可，後續動作非常方便，較習知節省了漿灌時之補土和整平，漿灌後之粉光等人工，使整體之施工上快速簡便且成本可更為降低

15 2. 外層板 5 開設溢流孔 51 形成網孔效果，然而該外層板係為結實板面，不會彎曲，故在架設上該縱向支架 4 間距可拉長，不需如習知之密，如此在自攻螺絲及架設支架上皆大幅節省人工。

20 3. 在灌漿上直接由上端之灌注口 53 一次完成，非常快速，不需由下而上分段灌注。

本創作之溢流孔 51 除了可使灌漿時形成流通式，不會有氣阻現象，而且更可察看灌漿情況，該溢流孔 51 係為雙層孔，外孔 512 較內孔 511 大，使漿體 6 凝固後形成勾扣效

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五、創作說明(7)

1 果，更能加強整體之結合效果

由以上之說明，可知本創作在灌漿式隔間牆之施工上再更上一層樓，藉由外層板有相當之堅硬性不會彎曲及其上之溢流孔所形成之網孔效果，可達到施工上之簡便性

5 本創作較前案在架設支架和板體較為簡便迅速，節省漿灌時之補土和整平，漿灌後之粉光，且在灌漿更較為迅速，如此可使整體施工上之成本減少約百分之二十，實為一更為進步之施工方式。

10 本創作僅是簡要敘述施工狀況，以目前營造上之建材板接合技術及灌漿技術來實施本創作之構造皆可達成的，不會有施工之困難、結合不良、或產生蜂巢等問題。

15 綜上所述，相信能對本創作作相當詳盡之揭露，本創作確能藉其改良之構造，達到預期之功效和目的而合於實用，且本案申請前未公開公用，誠已符合新型專利申請之新穎，實用，進步等要件，爰依法提出專利申請。

惟以上所述僅為本創作之一較佳實施例，大凡熟悉此技藝之人士依照本創作所依之精神所作成之各種變化與修飾，仍應包括於本案專利範圍。

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(請先閱讀背面之注意事項再填寫本頁)

裝

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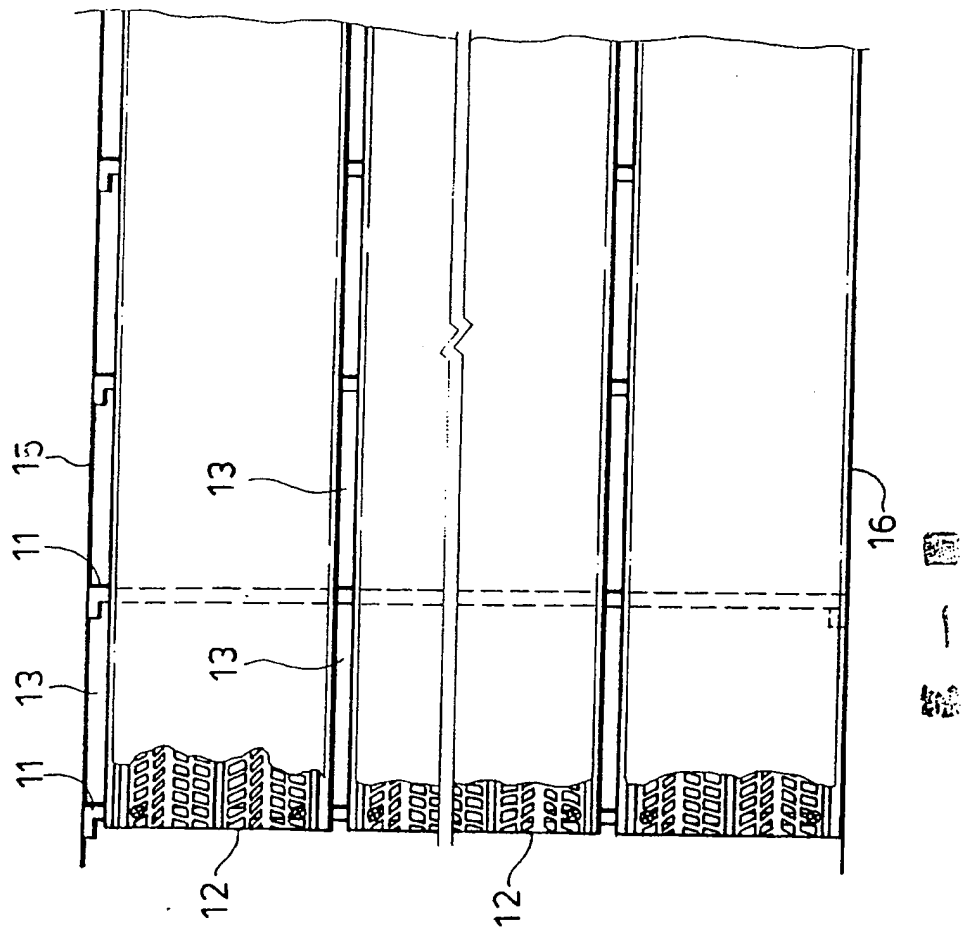
六、申請專利範圍

- 1 1.一種灌漿式隔間牆構造，其係包括有：
上水平架，係與天板固定；
下水平架，係與地板固定；
多數之縱向支架，係呈間距架立於上、下水平架間，，
5 各縱向支架係設有兩側緣，其上、下端係分別與上、
下水平架固定；
多數之外層板，其上均設有多數之溢流孔，其係固定於
各縱向支架之兩側緣使形成牆厚之容置空間；及
漿體，係灌注於外層板所包圍之容置空間。
10 2.如申請專利範圍第1項所述之灌漿式隔間牆構造，其中
該縱向支架以橫截面呈「」形之槽鐵為較佳者。
3.如申請專利範圍第1項所述之灌漿式隔間牆構造，其中
該溢流孔以設置成外孔較內孔大之雙層孔為較佳者。
4.如申請專利範圍第1項所述之灌漿式隔間牆構造，其中
15 該外層板可為水泥纖維板材或是礦纖板。

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圖式

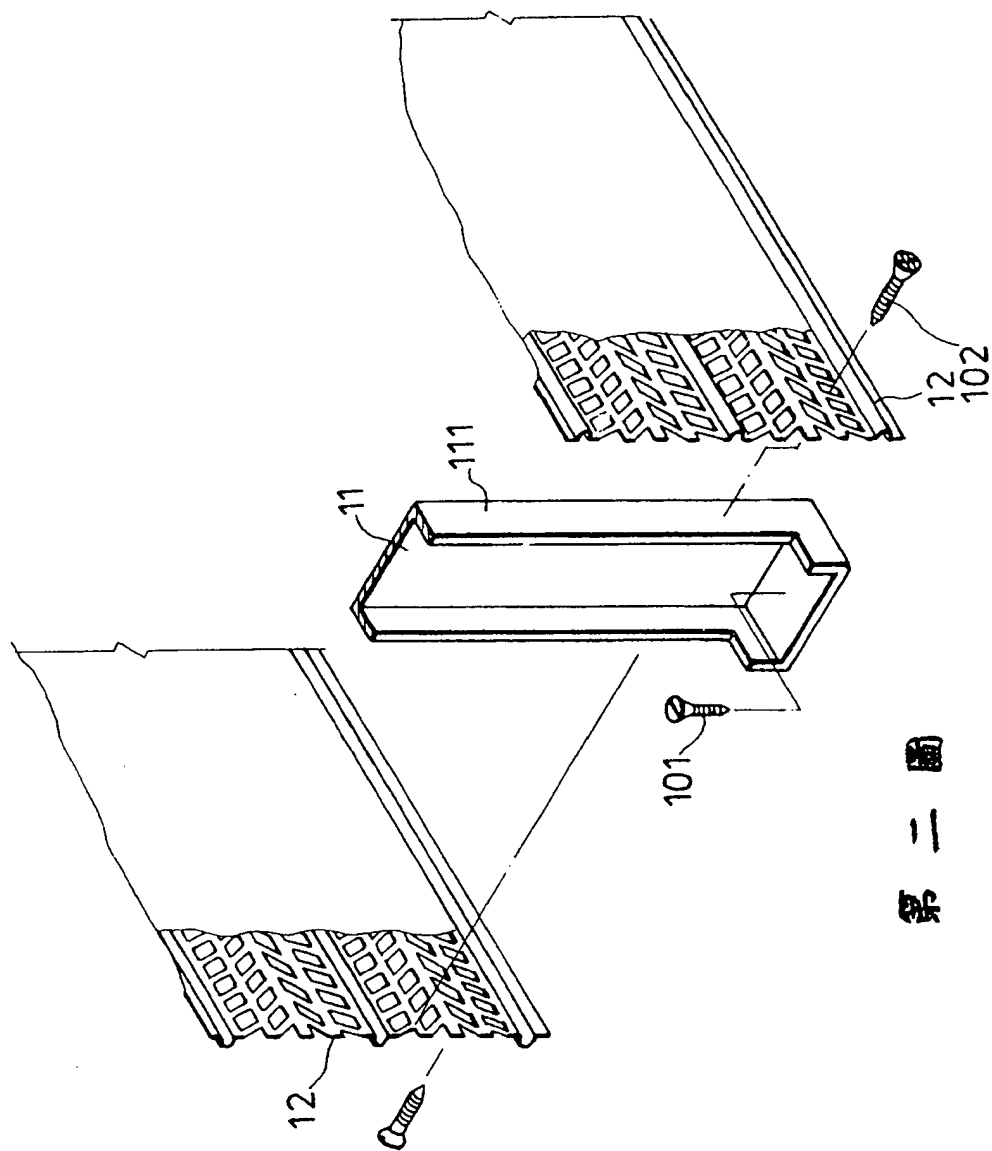


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圖式

第二圖



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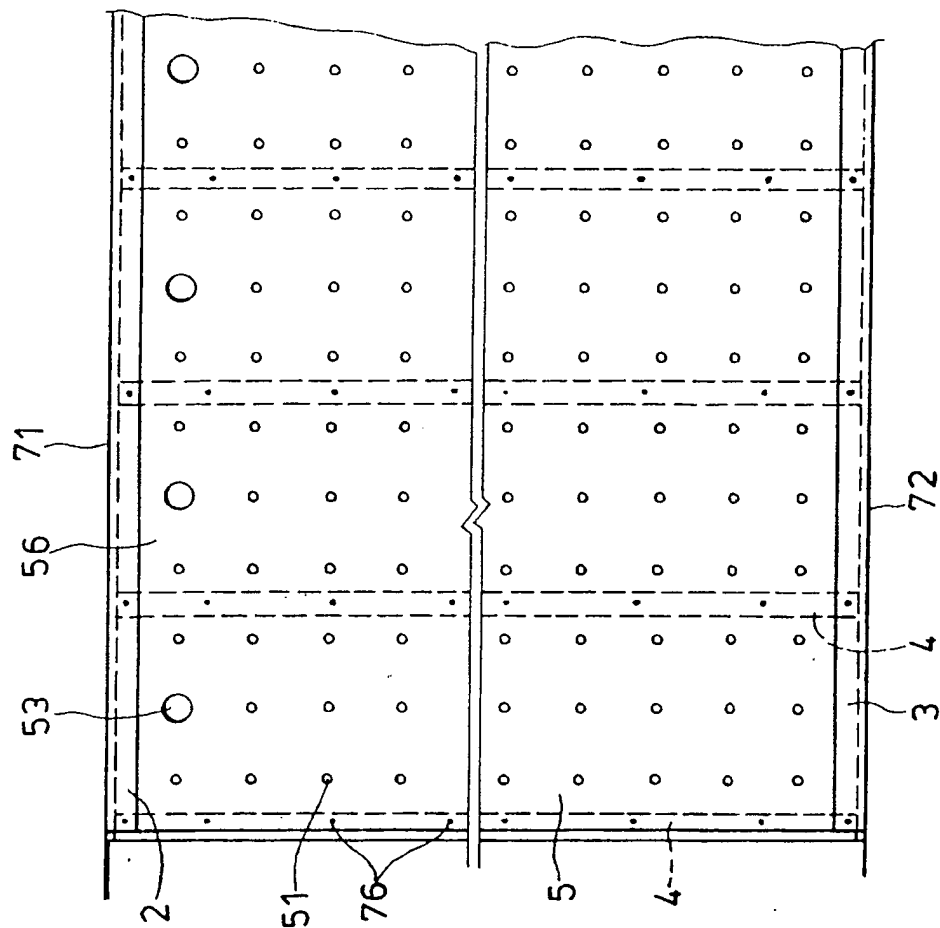
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第

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第三圖



圖式

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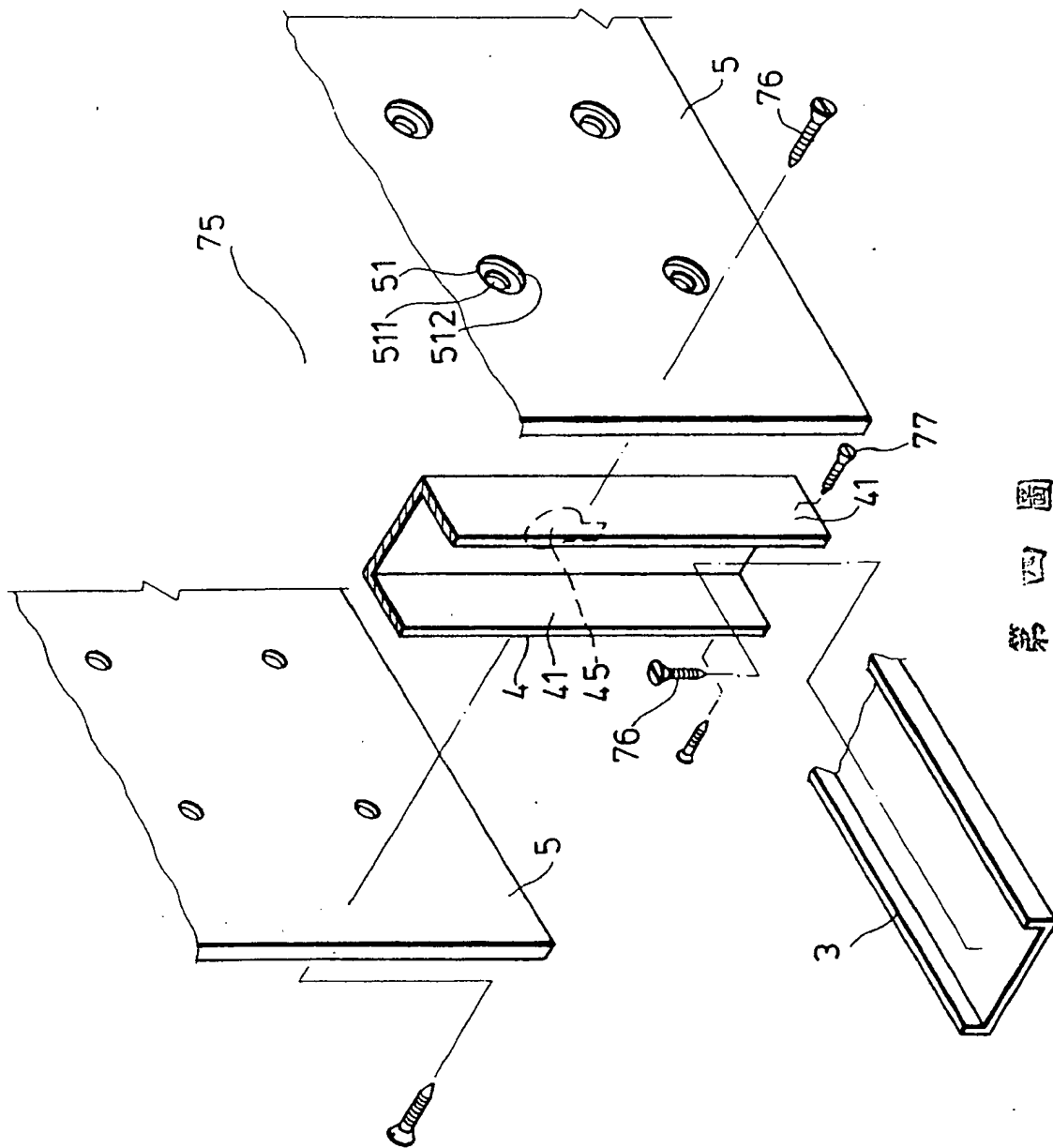
(總發行所) 上海商務印書館

第

三

圖

圖四



圖式

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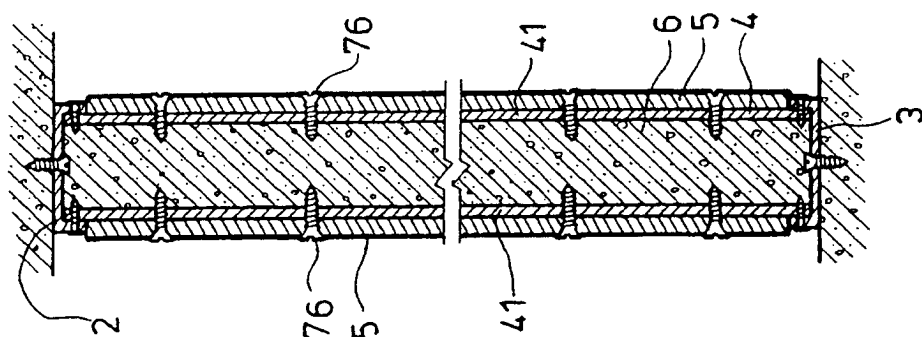
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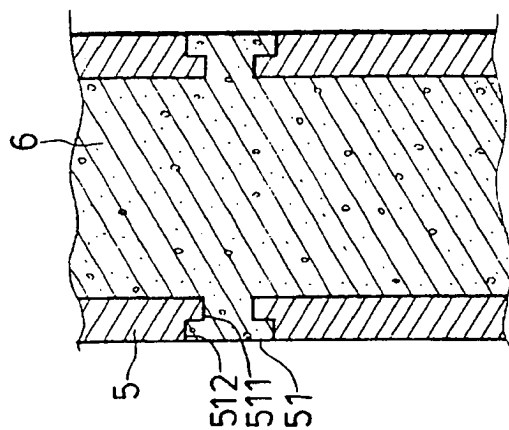
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圖式

第五圖



第六圖



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(請先閱讀說明書之注意事項再行繪製)

第

訂

裝

四、中文創作摘要（創作之名稱：

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灌漿式隔間牆構造

本創作係提供一種灌漿式隔間牆構造，其係包括有：
上水平架，係與天板固定；下水平架，係與地板固定；多
數之縱向支架，係呈間距架立於上、下水平架間，各縱
向支架係設有兩側緣，其上、下端係分別與上、下水平架
固定；多數之外層板，其上均設有多數之溢流孔，其係固
定於各縱向支架之兩側緣使形成牆厚之容置空間；及漿體
，係灌注於外層板所包圍之容置空間；藉由以上構造，本
創作灌漿後整體即結合成非常堅實之牆面，其外層板可為
水泥纖維板或礫纖板非常平整可直接披土將溢流孔及螺孔
補平即可，後續施工非常方便，而且在架設支架和外層板
均甚為簡便。

（請先閱讀背面之注意事項再填寫本頁各欄）

裝

訂

線

英文創作摘要（創作之名稱：

）

五、創作說明(／)

- 1 本創作係有關於隔間牆構造，特別是指一種灌漿式隔間牆構造。

按，習知隔間牆在設置上大抵有下列數種：

一、砌磚式：

- 5 其係以水泥堆砌磚塊築成，在施工上需搬運磚塊至各樓層，而水泥與細砂亦需現場攪拌使用，而且精砌成後需再補土、整平、粉光、披土，最後再油漆才完成，甚為費工耗時，成本甚高，且容易龜裂，在管線之配置上需開鑿牆面非常不便且會破壞牆面之應力結構，當地震時很容易有龜裂現象，另外，在施工時現場會產生甚多廢料，需加以清除。
- 10

二、ALC式：

- 係以粘著劑堆築ALC塊（俗稱輕質磚塊），精砌成後需披土和油漆即完成，雖然施工上方便許多，然而ALC塊較磚塊為貴，且與砌磚同樣有管線配置之困難及容易龜裂。
- 15

三、石膏板式：

- 係架設槽鐵架，再以石膏板鎖設於槽鐵架之兩面上，其在施工上雖最為簡便，配管線可設於兩石膏板間之空間非常容易，及低成本，然而石膏板怕水，遇潮時容易發霉，不適合台灣高濕度氣候使用，而且其兩石膏板間是空心強度小，當拍打時會有聲響，不耐撞擊，更不能釘掛物品。
- 20

四、RC牆：

係架設鋼筋，兩面鋪設木模板，再灌注混凝土，其具

（請先閱讀背面之注意事項再填寫本頁）

裝

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五、創作說明 (2)

- 1 有堅固、配管線容易（在灌注前先配好管線）、及灌注容易之優點，然而施工上需大量之木模板（用過之木模板不能再重覆使用），現今原木愈來愈貴，且施工上需編綁木模板、架鋼筋、拆除木模板，整體之施工技術性高且速度
- 5 慢緩，使成本增高，其木板拆除後仍需補土、粉光、披土、油漆，另外，RC牆因整體結構甚重較不適於作為隔間牆，其最適合於作為外牆及承重牆。

- 有鑑於上述習知各種牆面之設置優缺點，業者進而發展出一種灌漿式隔間牆，請參閱第一、二圖，係為公告號
- 10 227243習知之灌漿式隔間牆（以下簡稱前案）其係呈間距架設有多數支口形之槽鐵架11，該各槽鐵之上下端係以自攻螺絲101鎖定於天板15和地板16，該各槽鐵架11之兩側緣111亦以自攻螺絲102鎖設有網狀之鐵片體12，使形成一容置空間，在施工上，該上下之兩網狀之鐵片體12間係留
- 15 有灌注口13，由各灌注口13由下往上逐段灌漿使充滿該容置空間，多出之混凝土和水份由網孔滲出，當混凝土凝結後即與槽鐵架11和鐵片體12結合成一體，藉由鐵片體12之網孔拉住混凝土而形成一整體堅固之隔間。

- 上述之灌漿式隔間牆主要係結合石膏板和RC牆之優點的改良設計，其可達到牆面之堅固性，配管線之方便性，
- 20 及施工上非常簡便，而且因牆面具有一體結合特性，並非如磚塊一塊塊砌成，故抗龜裂性甚佳，不容易產生龜裂現象，然而其仍未達到最為完善之境界，有以下之缺失待改善，即：

五、創作說明 (3)

1. 灌漿時之牆面並非是平整面，仍需由人工於灌漿過程時一邊補土和整平，待凝固後需再粉光，披土後才能油漆，在施工上並非相當簡便。
2. 使用網狀之鐵片體 12 作包覆，由於鐵片體 12 較軟會彎曲，故在架設上槽鐵架 11 之間距不能太大，約 30 公分就要一支，且自攻螺絲亦需較密，才能使鐵片體 12 架設較為結實，如此，在施工上就需較為費事耗工。
3. 在灌漿上係由下而上分段灌漿，即需下段灌漿凝結後才能往上一格灌注，故灌漿速度較慢。

有鑑於此，本案創作人積極從事改善經不斷苦心精心設計，終於設計出本創作之“灌漿式隔間牆構造”。

本創作之主要目的在於提供一種灌漿式隔間牆構造，使在整體架設上非常簡便，且灌漿後牆面可直接披土，達到施工上之簡便性，節省人工成本。

本創作之主要特徵在於以堅實之外層板來取代習知之會彎曲之網狀之鐵片體，使在架設上較為簡便，且在灌漿後免除粉光之施工，該外層板可為水泥纖維板或是礫纖板等建材，其上均設有溢流孔，如此即可達到網孔與漿體緊密結合之效果，該溢流孔係設置成外孔較內孔大之雙層孔，如此漿體凝固後可形成勾扣效果，更能加強整體之結合效果。

緣是，本創作灌漿式隔間牆構造，其係包括有：上水平架，係與天板固定；下水平架，係與地板固定；多數之

(請先閱讀背面之注意事項再填寫本頁)

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五、創作說明(4)

- 1 縱向支架，係呈間距架立於上、下水平架間，各縱向支架係設有兩側緣，其上、下端係分別與上、下水平架固定；多數之外層板，其上均設有多數之溢流孔，其係固定於各縱向支架之兩側緣使形成牆厚之容置空間；及漿體，係
- 5 灌注於外層板所包圍之容置空間。

- 藉由以上構造，本創作灌漿後整體即結合成非常堅實之牆面，其外層板係為水泥纖維板或是礦纖板非常平整可直接披土將溢流孔及螺孔補平即可，後續動作非常方便；另外，因外層板不會彎曲故在架設上該縱向支架之間距可
- 10 加大不需很密集，使施工上更為簡便。

本創作之其他優點、目的及特徵，由以下說明配合圖式可對本案較佳實施例所作之詳細說明獲得進一步之瞭解。

一、圖示簡單說明：

- 15 第一圖係習知之灌漿式隔間牆之正面示意圖。
- 第二圖係習知之灌漿式隔間牆之部份立體分解示意圖。
- 第三圖係本創作一較佳實施例之正面示意圖。
- 第四圖係本創作一較佳實施例之部份立體分解示意圖。
- 第五圖係本創作一較佳實施例之外層板和縱向支架結合之剖面示意圖。
- 20 第六圖係本創作一較佳實施例之外層板溢流孔和灌體結合之剖面示意圖。

二、標號簡要說明：

- 2 上水平架

(請先閱讀背面之注意事項再填寫本頁)

裝

訂

五、創作說明 (5)

- | | | | |
|---|----|------|---------|
| 1 | 3 | 下水平架 | |
| | 4 | 縱向支架 | 6 漿體 |
| | 5 | 外層板 | 75 容置空間 |
| | 51 | 溢流孔 | 76 自攻螺絲 |
| 5 | 53 | 灌注孔 | |

請參閱第三、四、五圖，本實施例係包括有：上水平架2、下水平架3、多數之縱向支架4、多數之外層板5、及漿體6所構造成之隔間牆，其中該：

該上水平架2，係為U形槽鐵架，以自攻螺絲使與天板71固定，以使上端齊平。

該下水平架3，係為U形槽鐵架，以自攻螺絲76使與地板72固定，以使下端齊平。

該各縱向支架4，係呈約45公分間距架立，其係為U形槽鐵架，其兩側緣41之上、下端係分別以自攻螺絲77與上、下水平架2、3固定，另外，其中間板適當間隔設有一開孔45。

該外層板5係，可採用一種水泥纖維板或是礦纖板之建材，本實施例係在板面上均設有多數之溢流孔51，使具有網狀開孔之效果，請參閱第六圖，該溢流孔51係設置成雙層孔，其內孔511之孔徑約1.5cm，外孔512之孔徑約2.5cm，如此當與漿體結合後可形成勾扣效果，其係以自攻螺絲76固定於各縱向支架4之兩側緣41，使與各縱向支架4固定並形成牆厚之容置空間75，而該自攻螺絲76係沈於板體內2，螺絲頭不會凸出板面。

(請先閱讀背面之注意事項再填寫本頁)

裝

訂

五、創作說明 (6)

- 1 該漿體 6，係灌注於外層板 5 所包圍之容置空間 75，其可為混凝土或是輕質水泥。

- 5 在施工上，該各外層板 5 係視牆面之長度和高度裁接架設（目前有 4*8 英尺之規格板），整體板面之上端係配合配合縱向支架 4 之間距設有灌注孔 53，在施工上係建物內之管線或開關於各縱向支架 4 間之容置空間配設好後，再自該各灌注孔 53 灌漿而形成一隔間牆。

- 10 藉由以上構造，本創作灌漿後整體即結合成非常堅實一體性之牆面，其外表係為水泥纖維板或礦纖板非常平整，在施工上較習知之灌漿式隔間牆上有以下之方便性：

1. 外層板 5 非常平整，灌漿後可直接披土將溢流孔 51、接縫、及螺孔補平即可，後續動作非常方便，較習知節省了漿灌時之補土和整平，漿灌後之粉光等人工，使整體之施工上快速簡便且成本可更為降低

- 15 2. 外層板 5 開設溢流孔 51 形成網孔效果，然而該外層板係為結實板面，不會彎曲，故在架設上該縱向支架 4 間距可拉長，不需如習知之密，如此在自攻螺絲及架設支架上皆大幅節省人工。

- 20 3. 在灌漿上直接由上端之灌注口 53 一次完成，非常快速，不需由下而上分段灌注：

本創作之溢流孔 51 除了可使灌漿時形成流通式，不會有氣阻現象，而且更可察看灌漿情況，該溢流孔 51 係為雙層孔，外孔 512 較內孔 511 大，使漿體 6 凝固後形成勾扣效

（請先閱讀背面之注意事項再填寫本頁）

裝

訂

五、創作說明(7)

1 果，更能加強整體之結合效果

由以上之說明，可知本創作在灌漿式隔間牆之施工上再更上一層樓，藉由外層板有相當之堅硬性不會彎曲及其上之溢流孔所形成之網孔效果，可達到施工上之簡便性

5 本創作較前案在架設支架和板體較為簡便迅速，節省漿灌時之補土和整平，漿灌後之粉光，且在灌漿更較為迅速，如此可使整體施工上之成本減少約百分之二十，實為一更為進步之施工方式。

10 本創作僅是簡要敘述施工狀況，以目前營造上之建材板接合技術及灌漿技術來實施本創作之構造皆可達成的，不會有施工之困難、結合不良、或產生蜂巢等問題。

15 綜上所述，相信能對本創作作相當詳盡之揭露，本創作確能藉其改良之構造，達到預期之功效和目的而合於實用，且本案申請前未公開公用，誠已符合新型專利申請之新穎，實用，進步等要件，爰依法提出專利申請。

20 惟以上所述僅為本創作之一較佳實施例，大凡熟悉此技藝之人士依照本創作所依之精神所作成之各種變化與修飾，仍應包括於本案專利範圍。

(請先閱讀背面之注意事項再填寫本頁)

裝

訂

六、申請專利範圍

- 1 1. 一種灌漿式隔間牆構造，其係包括有：
- 上水平架，係與天板固定；
- 下水平架，係與地板固定；
- 多數之縱向支架，係呈間距架立於上、下水平架間，，
- 5 各縱向支架係設有兩側緣，其上、下端係分別與上、
- 下水平架固定；
- 多數之外層板，其上均設有多數之溢流孔，其係固定於
- 各縱向支架之兩側緣使形成牆厚之容置空間；及
- 漿體，係灌注於外層板所包圍之容置空間。
- 10 2. 如申請專利範圍第1項所述之灌漿式隔間牆構造，其中
- 該縱向支架以橫截面呈U形之槽鐵為較佳者。
3. 如申請專利範圍第1項所述之灌漿式隔間牆構造，其中
- 該溢流孔以設置成外孔較內孔大之雙層孔為較佳者。
4. 如申請專利範圍第1項所述之灌漿式隔間牆構造，其中
- 15 該外層板可為水泥纖維板材或是礫纖板。
- 20

(請先閱讀背面之注意事項再填寫本頁)

裝

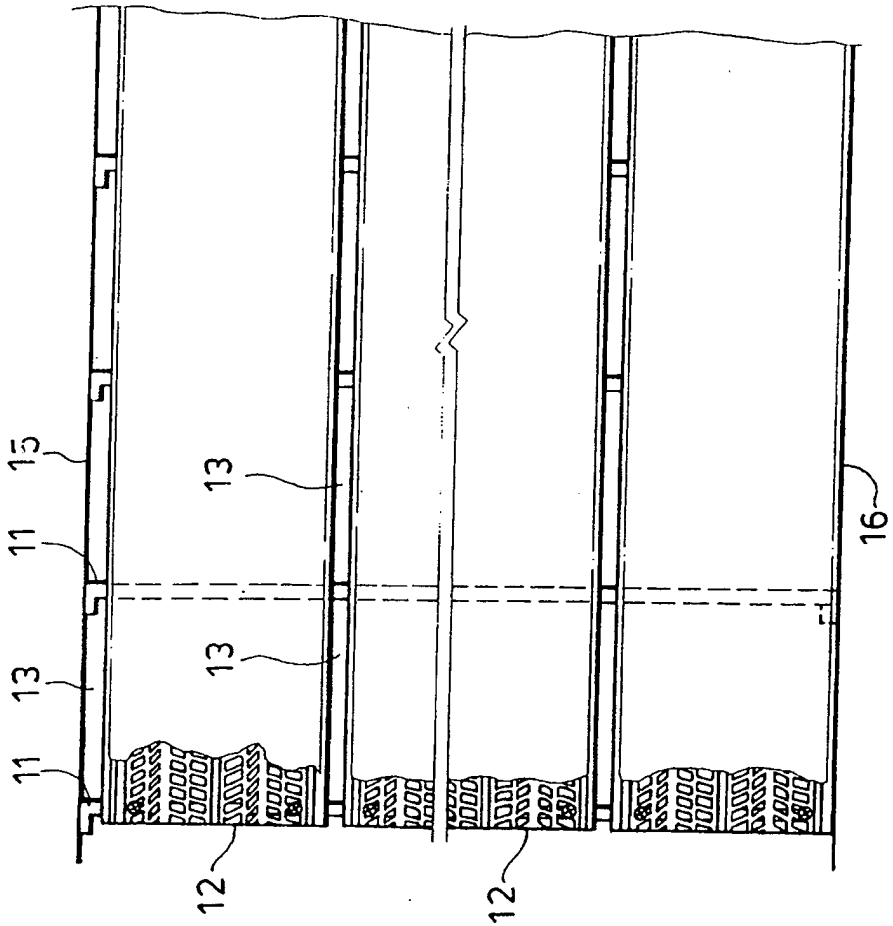
訂

218537

A9
B9
C9
D9

(註) 此圖係按中國標準(註) 1:1 比例繪製

圖式



第一圖

(註) 請先閱說明書之圖式及說明書之文字說明

第 一 頁

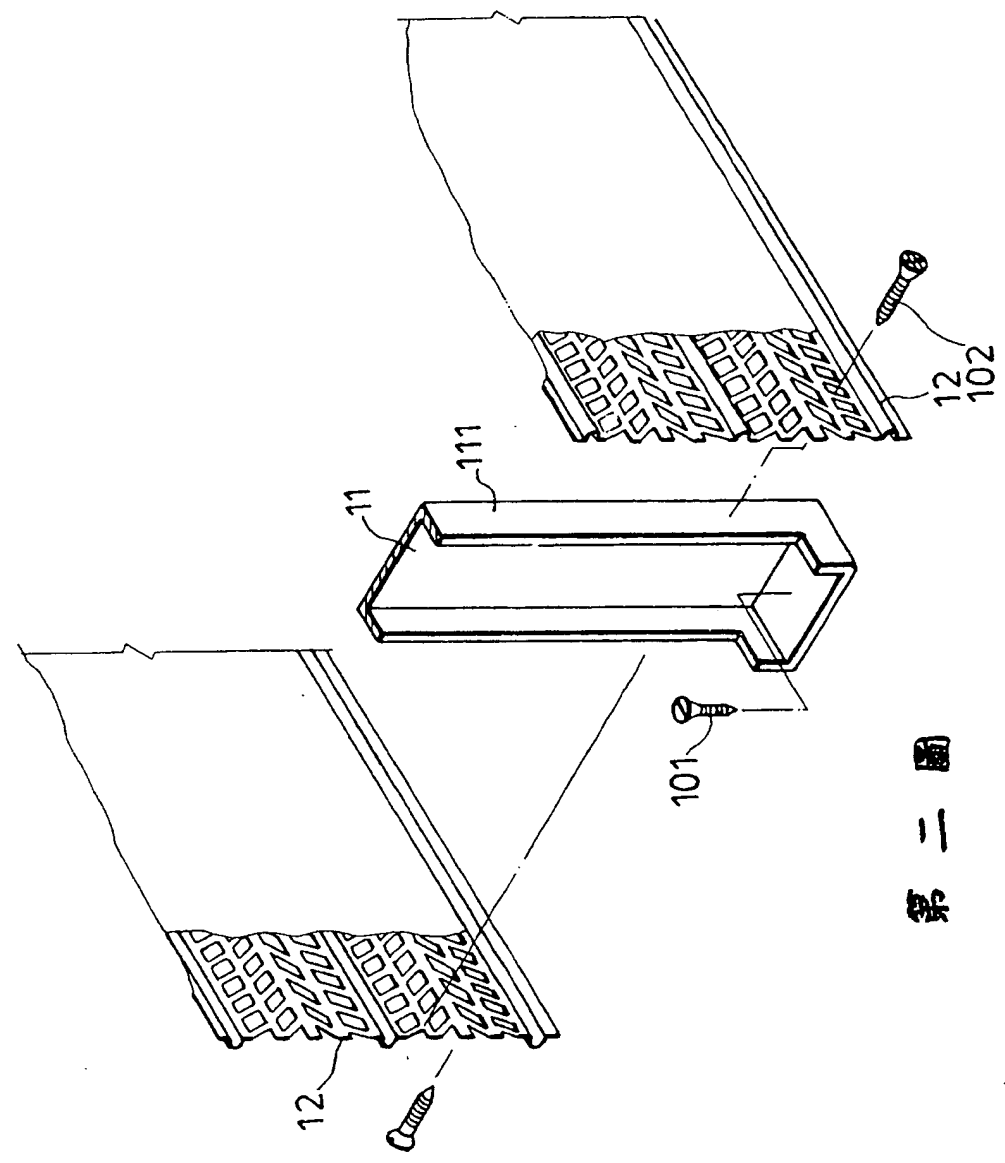
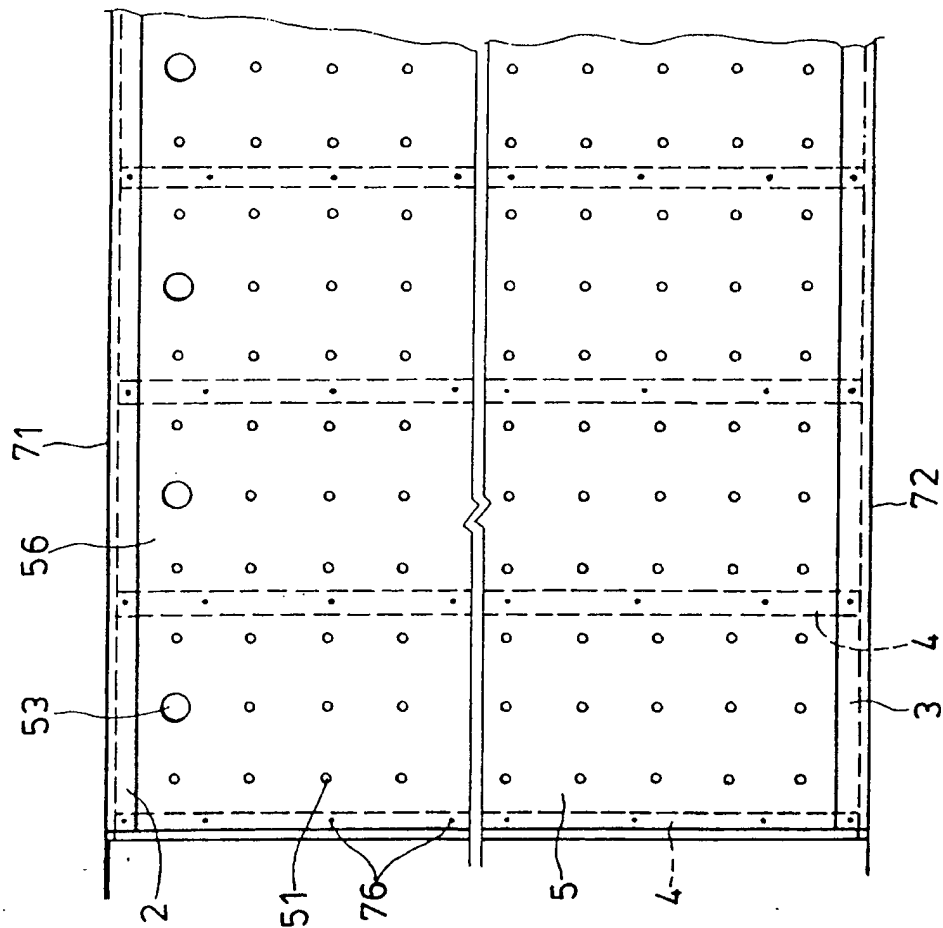


圖 二

圖式

A9
B9
C9
D9

第三圖



圖式

278537

A9
B9
C9
D9

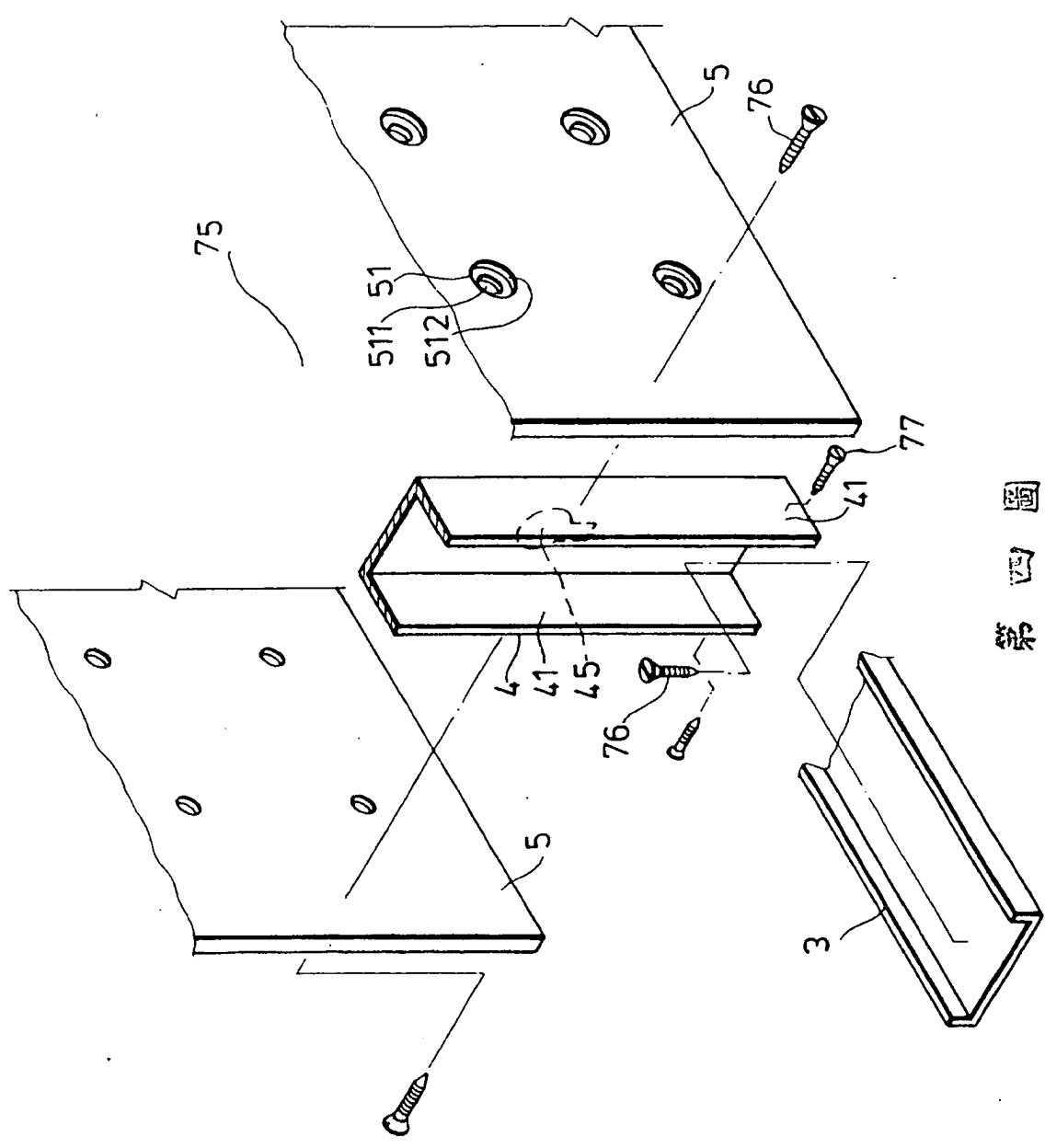
(請先閱讀背面之注意事項再行繪製)

裝

訂

大紙張尺庫適用中國圖定標準 (CNS) A1組 4 (210×297公釐)

圖四



圖式

278537

A9
B9
C9
D9

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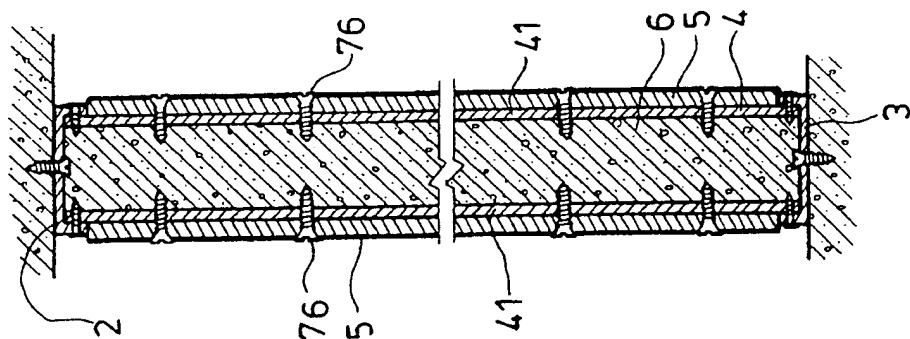
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計

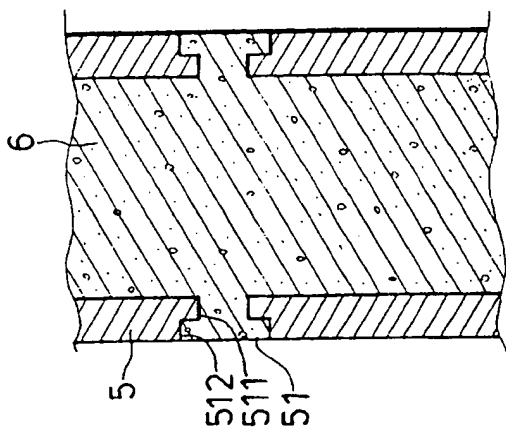
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圖式

第五圖



第六圖



A9
B9
C9
D9

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訂

裝

Evidence 1

278537

A structure of a blocking wall by filling slurry**Disclosure of the invention**

This invention relates to a structure of a blocking wall, and especially to a structure of a blocking wall by filling slurry.

Prior art blocking walls include the following types:

1. a bricking type :

This type of wall is constructed by bricking with cement. It is necessary to move bricks to each floor, and cement and fine sands have to be stirred on the site. Moreover, after the wall is bricked, patching, flattening, powdering, spreading and painting are needed. The procedure thereof is complicated, time-consuming and costly, and this kind of wall is easy to crack. The installation of pipe lines is inconvenient and the stress structure of the wall will be damaged because the wall has to be drilled for the installation, resulting that the wall is liable to crack in an earthquake. Additionally, it is necessary to remove the waste material in the construction spot.

2. an ALC type:

It relates to a construction type using an adhesive to brick ALC bricks (known as light weight bricks). After bricking, the wall only needs to be spread and painted. Although it is more convenient in construction, the ALC bricks are more expensive than regular bricks. Moreover, the problems of difficult installation of pipe lines and fragility still exist.

3. a plaster type:

It builds an iron-made frame, and then fixes a plaster board on each face of the frame. The constructing steps are simpler and it is easier to construct and to put the pipe lines in the space between the plaster boards, and the cost is low. However, the plaster is liable to be destroyed by water and to be musty such that it is not suitable to be used in the high humidity climate of Taiwan. Moreover, the portion between the two plaster boards is hollow so the strength is low and noise is produced upon patting the wall. So the wall can not endure striking forces and can not have objects hanged thereon.

4. a RC type:

It builds a reinforced steel frame, then fixes a wooden board on each face of the frame, and then fills concrete therein. It has the characteristic of solidity, easy-installation of pipe lines (the pipe lines should be installed before filling concrete) and easiness for filling concrete. However, a vast amount of

wooden frames (the used wooden frame can not be reused) is needed and the wooden product is becoming more and more expensive. Moreover, it is necessary to fasten the wooden frame, to build the steel frame and to remove the wooden frame after construction. The constructing technique as a whole is difficult and the constructing speed is slow such that the cost is high. After the wooden frame is removed, the processes of patching, powdering, spreading and painting are still needed. Additionally, since the structure of the RC wall as a whole is too heavy to be used as a blocking wall, the RC wall is more suitable to be used as an outer wall or a load-bearing wall.

In view of the drawbacks of these prior art blocking walls, a blocking wall by filling slurry has been developed, as shown in Figures 1 and 2 of Taiwanese Patent Publication No. 227243. In this conventional blocking wall by filling slurry (referred to as the prior patent hereinafter), a plurality of "U" shaped slotted iron frames 11 are constructed at a certain interval, wherein an upper edge and a lower edge of each of the slotted frames are fixed onto a ceiling 15 and a floor 16, respectively, by tap screws 101, and a two-face portion 111 of each of the slotted iron frames 11 is fixed onto a mesh-like iron slice 12 also by tap screws 102 so as to form an accommodating space. In construction, a space between an upper part and a lower part of the mesh-like iron slice 12 is provided with a filling hole 13. The accommodating space is filled with slurry through the filling holes 13, progressively from a bottom section to a top section thereof. The extra concrete and water will seep out through mesh holes. After the concrete is cured, the concrete will combine with the slotted iron frames 11 and the iron slice 12 to become an integral body, and the concrete is holding by the mesh holes of the iron slice 12 so as to form a solid integral blocking wall.

The above mentioned blocking wall by filling slurry is an improvement by combining the advantages of the plaster board and the RC wall. The advantage of this modification is that it achieves the goal of having a strong solid wall with the convenience of installing pipe lines and easy-constructing. Moreover, since the wall has the characteristic of being integrally formed rather than being formed by bricking pieces of bricks, the wall does not crack easily. However, this kind of construction is still not perfect and has the following disadvantages:

1. The wall surface during the filling of slurry is not smooth. Hence, the wall surface has to be laboriously patched and flattened. Then, after the wall surface is cured, the surface has to be powdered, spread and painted. The constructing steps are not simple.

2. The process of covering the mesh-like iron slice 12 is necessary. Since the iron slice 12 is flexible and will be bent, the space between the installed slotted iron frames can not be too large. One frame is required every 30 cm, approximately. The density of the tap screws has to be sufficiently large for strengthening the structure of the iron slice 12. Therefore, the construction is complicated and time-consuming.
3. The filling of slurry has to be progressively performed from the lower sections to the upper sections. In other words, the upper portion of the wall can not be filled with slurry until the lower portion is cured.

Therefore, the speed of filling slurry is slow.

In view of these drawbacks, the present inventor proposed in this application a structure of a blocking wall by filling slurry.

The main object of this application is to provide a structure of a blocking wall by filling slurry in which the construction thereof is convenient, and the wall surface can be spread immediately after filling slurry, thereby achieving the advantages of convenience and cost reduction.

The main characteristic feature of this invention is that a solid outer board is used to replace the conventional flexible mesh-like iron slice so that the installation becomes simpler, and the process of powdering is eliminated. The outer board could be any one of a concrete fiber board, a mineral fiber board or the like, on which overflow holes are provided such that mesh holes and the slurry material can be tightly combined together. The overflow hole is of a stepped hole structure in which an outer hole portion is larger than an inner hole portion so that the cured slurry material produces a hooking effect to further increase the combination effect as a whole.

Therefore, a structure of a blocking wall by filling slurry according to this invention comprises an upper horizontal frame fixed onto a ceiling; a lower horizontal frame fixed onto a floor; a plurality of vertical frames built between the upper and the lower horizontal frames at a certain interval and each having two side-edges, wherein an upper and a lower ends of the vertical frame are fixed to the upper and the lower horizontal frames, respectively; a plurality of outer boards each having a plurality of overflow holes thereon, wherein the outer boards are fixed to the two outer edges of the vertical frames so that an accommodating space corresponding to a wall thickness is formed; and slurry filled in the accommodating space surrounding by the outer boards.

With the structure described above, a solid wall surface according to this invention is formed after filling the slurry. The outer boards of the wall, chosen

from the concrete fiber boards, the mineral fiber boards or the like, are very smooth such that the wall can be processed by directly patching the overflowing holes and the screw holes. In other words, the follow-up steps are very simple. Additionally, since the outer boards are not flexible, the vertical frames can be arranged with enlarged intervals and do not have to be densely provided whereby the construction becomes easier.

The other advantages, objects and characteristic features of this invention can be further understood by the following description of the preferred embodiment with reference to the drawings.

(1) Brief description of drawings:

Fig.1 is a schematic plane view of a conventional blocking wall by filling slurry;

Fig.2 is an exploded partial perspective view of a conventional blocking wall by filling slurry;

Fig.3 is a schematic plane view of a preferred embodiment according to the present invention;

Fig.4 is an exploded partial perspective view of a preferred embodiment according to the present invention;

Fig.5 is a cross sectional view of a combination of the outer boards and the vertical frames of a preferred embodiment according to the present invention;

Fig.6 is a cross sectional view of a combination of overflow holes of the outer boards and the slurry of a preferred embodiment according to the present invention.

(2) A list of reference numerals with their corresponding elements:

- 2 upper horizontal frame
- 3 lower horizontal frame
- 4 vertical frame
- 5 outer board
- 6 slurry
- 51 overflow hole
- 53 filling hole
- 75 accommodating space
- 76 tap screw

Please refer to Figures 3, 4 and 5. The embodiment of this invention comprises a blocking wall constructed by an upper horizontal frame 2, a lower horizontal frame 3, a plurality of vertical frames 4, a plurality of outer boards 5, and slurry 6.

The upper horizontal frame 2 is a "U"-shaped slotted iron frame, fixed onto a

ceiling 71 by tap screws so that an upper portion thereof is flat.

The lower horizontal frame 3 is a "U"-shaped slotted iron frame, fixed onto a floor 73 by tap screws so that the a lower portion thereof is flat.

The vertical frames 4 are arranged at an interval of about 45 cm and each frame is a "U"-shape slotted iron frame. An upper end and a lower end of two side edges of the frame 4 are fixed to the upper and lower horizontal frames 2 and 3 by tap screws 77, respectively. Additionally, a hole 45 is provided at a suitable interval in an intermediate board of the frame 4.

The outer board 5 can be chosen from any one of the cement fiber board, the mineral fiber board and the like. The board in this embodiment is provided with several overflow holes thereon so as to produce the effect of mesh holes. Please refer to Figure 6. The overflow hole 51 has a stepped hole structure. The diameter of the inner hole 511 is about 1.5 cm, and that of the outer hole 512 is about 2.5 cm, so that a combination of such a structure and the slurry material produces a hooking effect. The board 5 is fixed to the two side edges 41 of each vertical frame 4 by tap screws 76 and thus forms with the frame an accommodating space 75 corresponding to a thickness of the wall being constructed. The tap screw 76 is sunk into the board and does not projected out of the board.

The slurry 6 fills the accommodating space 75 surrounded by the outer boards, and may be concrete or light weight cement.

In construction, the outer boards 5 are installed depending on the length and the height of the wall (there is a specification of 4 x 8 feet). The upper end of the whole board surface is provided with a filling hole 53 corresponding to the interval between the vertical frames 4. During construction, after pipe lines and electrical switches in the building are located in the accommodating space surrounded by the vertical frames 4, the slurry is filled through filling holes 53 to form the blocking wall.

With the structure described above, after the slurry is filled, an integral solid wall is formed. The outer surface of the wall is a cement fiber board or a mineral fiber board, and the surface is very smooth. The convenience achieved by this application when compared with prior art are as follows:

1. The outer board 5 is very smooth. After the slurry is filled, patching of the overflow holes 51, the slits and the screw holes can be directly carried out. The follow-up steps are very simple. As compared with the prior art, the structure of this application saves the time of patching and flattening upon filling the slurry as well as the time of powdering after filling the slurry. Hence, the constructing time is saved and the cost is reduced.
2. The outer board 5 provided with the overflow hole can achieve the mesh hole

effect, and the outer board is solid and not flexible. Therefore, in construction, the interval between two vertical frames 4 can be enlarged as compared with that of prior art so that the installation of the tap screws and the frames significantly reduces the labor cost.

3. The process of filling the slurry can be accomplished by filling the slurry in the upper portion of the filling hole 53 at one time. It is very fast and does not need to fill the slurry at several times.

The overflow hole 51 of this application not only provides the air-flowing function, but also serves as the hole for observing the inside situation of the slurry filling. The overflow hole 51 is of a stepped hole structure, and the outer holes 512 is larger than the inner hole 511 such that the hooking effect can be achieved after the slurry material is cured. So the combining effect can be further strengthened.

In view of the above, apparently, the construction of the blocking wall by filling slurry can be further improved. By the solidity and non-flexibility of the outer board and the mesh hole effect of the overflow hole provided thereon, the simplicity of the construction can be achieved. The application provides a simpler and faster technique for construction as compared with prior art in terms of installing the frames and boards, by saving the time of patching and flattening upon filling the slurry and the time of powdering after filling the slurry. Therefore, the cost of the construction as a whole can be saved about 20%, and thus the technique according to this invention can be regarded as an improved method for construction.

The constructing conditions are merely briefly described above. The structure of this application can be achieved by applying the current technique for combining constructing boards and the technique for filling the slurry. The difficulty, ill-combination, and generation of the bee nest in construction do not exist.

In summary, the detailed description of this application has been made above. This application can achieve the claimed effect and the goal by the modified structure disclosed therein. The content of this application has never been disclosed prior to the filing date, so this application has met the statutory requirements of the utility model patent, i.e. novelty and inventive step. Therefore, this application is filed according to the patent law.

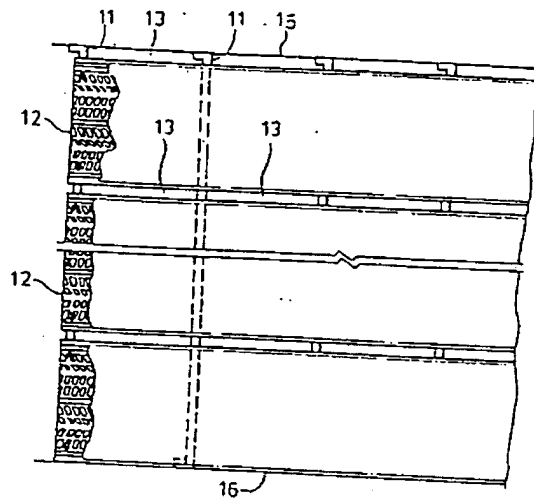
However, the above description is only directed to one of the preferred embodiments of this application. Various modifications made by people skilled in the field within the scope and the spirit of this application should be regarded in the scope of the following claims.

What is claimed is :

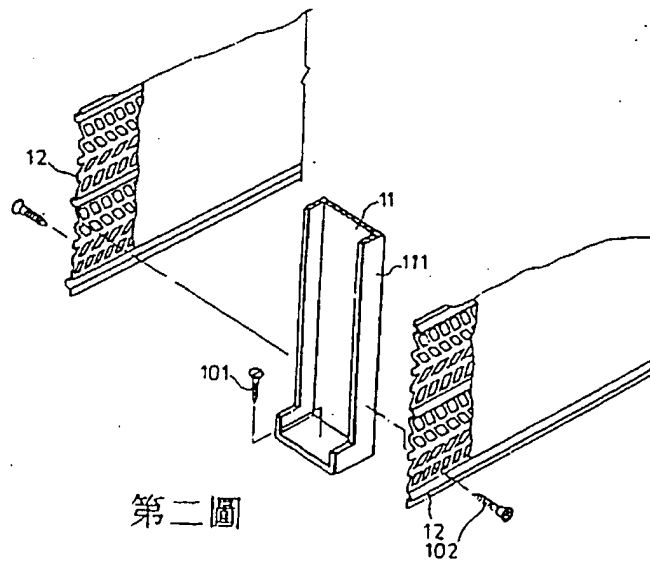
1. A structure of a blocking wall by filling slurry, comprising:
 an upper horizontal frame fixed to a ceiling;
 a lower horizontal frame fixed to a floor;
 a plurality of vertical frames provided between the upper and lower horizontal frames at a predetermined interval, wherein each of the vertical frames has two side edges and is fixed to the upper and lower horizontal frames at top and bottom portions thereof, respectively;
 a plurality of outer boards each having a plurality of overflow holes, wherein each of the outer boards is fixed to the two side edges of each vertical frame such that an accommodating space corresponding to a wall thickness is formed; and slurry filled in the accommodating space surrounded by the outer boards.
2. A structure of a blocking wall by filling slurry as claimed in Claim 1, wherein said vertical frame is a slotted iron with a "U"-shaped cross section.
3. A structure of a blocking wall by filling slurry as claimed in Claim 1, wherein said overflow hole is of a stepped hole structure in which an outer hole portion is larger than an inner hole portion.
4. A structure of a blocking wall by filling slurry as claimed in Claim 1, wherein said outer board is a cement fiber board or a mineral fiber board.

Abstract

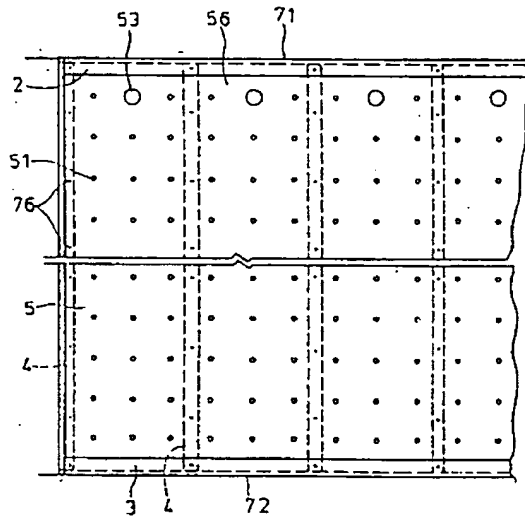
A structure of a blocking wall by filling slurry, comprising an upper horizontal frame fixed to a ceiling; a lower horizontal frame fixed to a floor; a plurality of vertical frames provided between the upper and lower horizontal frames at a predetermined interval, wherein each of the vertical frames has two side edges and is fixed to the upper and lower horizontal frames at top and bottom portions thereof, respectively; a plurality of outer boards each having a plurality of overflow holes, wherein each of the outer boards is fixed to the two side edges of each vertical frame such that an accommodating space corresponding to a wall thickness is formed; and slurry filled in the accommodating space surrounded by the outer boards. With the structure described above, a very solid wall can be constructed after the slurry is filled, wherein the outer board could be a concrete fiber board or a mineral fiber board which is flat enough so that it is only necessary to patch the overflow holes and the screwed holes directly. The follow-up steps are very simple, and the steps of constructing the frames and the outer boards are also simple.



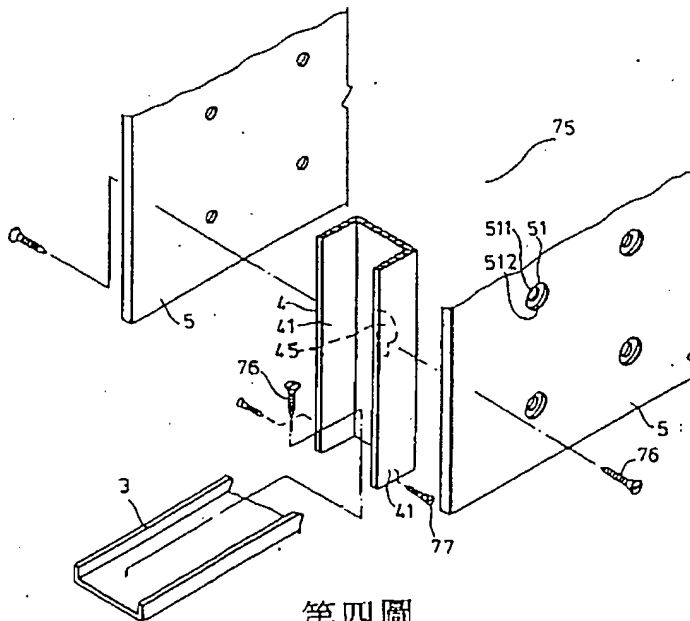
第一圖



第二圖

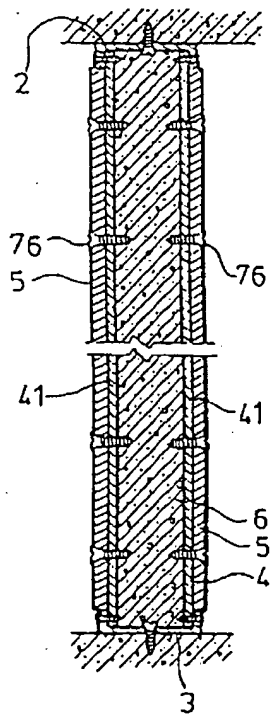


第三圖

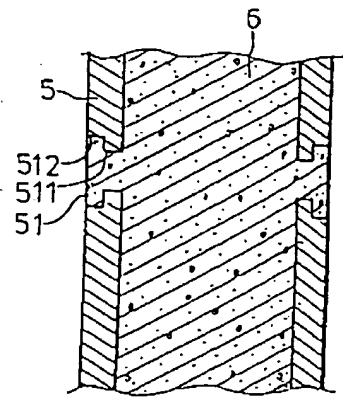


第四圖

(4)



第五圖



第六圖